Indiana Department of Natural Resources
Division of Forestry

DRAFT

Resource Management Guide

Harrison-Crawford State Forest **Compartment: 20 Tract: 2**
Dieter Rudolph **Date: March 24, 2010**

Acres Commercial Forest: 49
Acres Noncommercial Forest: 0
Acres Permanent Opening: 0
Acres Other: 9

Acres Total: 58

Basal Area >= 14 inches DBH: 54.36 sqft/ac
Basal Area < 14 inches DBH: 60.11 sqft/ac
Basal Area Culls: 8.63 sqft/ac
Total Basal Area: 112.51 sqft/ac

Number Trees/Acre: 290

Species	Harvest Volume(MBF)	Leave Volume(MBF)	Total Volume(MBF)
American Sycamore	20.77	47.72	68.49
Yellow Poplar	12.96	50.67	63.63
Silver Maple	5.8	5.59	11.39
Boxelder	4.04	0	4.04
American Beech	2.89	10.32	13.21
Eastern Red Cedar	2.1	2.14	4.24
White Ash	2.05	7.18	9.23
Sugar Maple	2.05	0	2.05
Scarlet Oak	1.36	2.2	3.56
Sassafras	0.93	0	0.93
Black Walnut	0	7.13	7.13
Black Cherry	0	3.98	3.98
Black Oak	0	3.98	3.98
Ohio Buckeye	0	1.64	1.64
Pignut Hickory	0	0.93	0.93
Hackberry	0	0.78	0.78
Total	54.95	144.26	199.21
Total per acre	1.3	3.5	4.8

Location

This 58 acre tract is located in Harrison County, Indiana. It is in section, 26 T3S R2E.

General Description

Tract 2 covers what is locally known as “Isaac’s Bottom”. There is a ‘band’ of forested ground paralleling Blue River that had not been farmed in the past. Otherwise, most of the rest of this tract that is currently in complete forest cover had been cleared and farmed for many years during its history. It is assumed that much of the land open at the time of acquisition has since reforested naturally. The central portion of the tract is currently open. A large portion of this opening is a plantation where various oak species were planted. The southern part of the opening showed natural regeneration of yellow poplar

so it was not planted and allowed to progress naturally. Neither the plantation nor the yellow poplar stands were measured in this inventory due to their young age which would likely cause skewed data when using the parameters for a forest inventory.

Besides these two young stand, the tract also contained two other forested stands as well as 9 acres within the tract taken up by the Blue River. The largest stand within the tract was the Mixed Hardwoods stand which contained a large variety of hardwood trees. This stand surrounded the plantation/yellow poplar stand and ran along the Blue River on the western boundary of the tract. The second stand was the Bottomland Hardwoods stand which was a narrow strip along the Blue River along the northern boundary. There was also a small area in the northeastern corner of the tract which was rocky and contained scrub-like American sycamore. This stand is easily flooded and contains trees that reach little more than ten feet in height.

History

The land in this tract was purchased at from Hanson in 1975 as a part of a 286 acre parcel. One past owner (Isaac) gives the tract area its name. Much of the field area was leased to local farmers to plant row crops for wildlife purposes until ca. 2001. In 2003, the field was planted, by machine, into a mixture of native hardwoods, funded by the Hardwood Forestry Fund, a forest industry foundation.

Landscape Context

2002 is part of a contiguous body of land owned by the State of Indiana and is almost completely surrounded by public land, with the exception of a small privately owned parcel immediately across Blue River to the north. A substantially larger block of private land is about ½ mile east of the tract. The ownerships that make up this block are mostly farms and single family residences. The farmland is primarily hay and pasture. The Blue River runs along the northern and western boundaries of the tract. The Stage Stop Campground, a primitive facility owned by the Division of Forestry, is across Blue River from the southern tip of the tract.

Topography, Geology, and Hydrology

This tract is relatively flat with the most slopes occurring within close proximity to the Blue River. The site is largely first and second terraces, with a relatively minor amount of the tract flood prone. The eastern boundary of the tract borders the bottom of a large hill. The hills to the east of the tract will provide runoff during heavy rains which move into the Blue River, the major watershed for the area.

No evidence of karst activity was seen within this tract but sinkholes and caves have been located in some of the neighboring tracts.

Soils

Corydon Stony Silt Loam (CoF) Shallow, moderately steep to very steep, well-drained, stony soils on uplands. Surface layer is about 3 inches. Subsurface is about 6 inches thick. Subsoil about 9 inches thick. The depth to hard limestone bedrock is about 18 inches. High in organic matter and low in natural fertility. Runoff is rapid or very rapid. Soil type is characterized by limestone outcrops, with as much as 15% on benches which are deeper than 20 inches to bedrock.
Degree Slope: 20-60 %
Woodland Suitability Group: 3d7
Site Index: 65-75 (Upland oaks)
Growth range potential (Upland oaks): 155-220
Management concerns: Runoff and erosion

Elkinsville Silt Loam (ElA, ElB2, ElC2, ElC3) Deep, nearly level to moderately sloping, well-drained soils on terraces. Surface layer is about 12 inches thick. Subsoil is about 50 inches thick. The underlying material is stratified layers of silt or sand and minor amounts of gravel. Moderate in content of organic matter. Available water capacity is high, and permeability is moderate. Runoff is slow to rapid.
Degree Slope: 0-12 %
Woodland Suitability: 1o1
Site Index: 85-95
Growth range potential (Upland oaks): 300-375 bd.ft./acre/year
Management Concerns: Runoff and erosion

Hagerstown Silt Loam (HaC2, HaD2, HgC3, HgD3, HgE3) Deep, moderately sloping to moderately steep, well-drained soils on uplands. Surface layer is dark yellowish brown silt loam about 6 inches thick. The subsoil is about 46 inches thick. The depth to limestone is about 52 inches. Characteristically, this soil is eroded to severely eroded. Moderate in content of organic matter and medium in natural fertility. Available water capacity is moderate or high, and permeability is moderate. Runoff is rapid to very rapid.
Degree Slope: 6-25 %
Woodland Suitability Group: 1o1 or 1r2
Site Index: 85-95 (Upland Oaks)
Growth range potential (Upland oaks): 300-375 bd.ft. /acre/year
Management Concerns: Runoff and erosion

Haymond Silt Loam (Hm) Deep, nearly level, well-drained soils on bottom lands and in basins of sinkholes in uplands. Surface layer is dark-brown about 9 inches thick. Subsoil dark yellowish-brown about 17 inches thick. Underlying material is dark yellowish-brown stratified silt loam that contains less prominent layers of loam. Moderate in content of organic matter. Available water capacity is high, and permeability is moderate. Runoff is slow.
Degree Slope: 0%
Woodland Suitability Group: 1o8
Site Index: (95-105- no rating for upland oaks)
Growth range potential (Tulip poplar-no rating for oaks): 375-450 bd.ft./acre/year
Management Concerns: Flooding between December and June

Pekin Silt Loam (PeA, PeB2) Deep, nearly level and gently sloping, moderately well drained soils on terraces. Fragipan in the lower part of the subsoil. Surface layer is dark brown silt loam about 12 inches thick. Subsoil is about 37 inches thick. Underlying material is stratified silty clay loam, silt loam, loam, and sand. Moderate in content of organic matter. Available water capacity is moderate, and permeability is very slow. Runoff is slow to medium.
Degree Slope: 0-6%
Woodland Suitability Group: 3d9
Site Index: 70-80 (Upland Oaks)
Growth range potential (Upland oaks): 185-260 bd.ft./acre/year
Management Concerns: Erosion, available water capacity, early spring wetness, lack of moisture in in mid and late summer.

Access

A firelane off of SR 462 enters this tract in the northeastern section. The firelane ends at the plantation. The firelane is graveled up to the point where it crosses a stream on a bridge. The bridge is not weight rated, but carried farm equipment and loaded grain trucks when the former field area was being cropped. After the bridge the firelane is a dirt road which is fragile when wet. When opportunity or need arises, the bridge's weight loading should be determined and the remainder of the firelane improved.

Boundary

This tract has well defined boundaries on all sides. The northern and western boundaries are the Blue River. The eastern boundary is the beginning of the slope of the hill in the neighboring tract. The entire tract is best explained as the parcel of relatively flat land between the hills and the Blue River.

Wildlife

A Natural Heritage Database review was obtained for this tract. If rare, threatened or endangered species were identified for this area, the activities prescribed in this guide will be conducted in a manner that will not threaten the viability of those species.

Most of the habitat goals were met within this tract. The biggest flaw was a result of the lack of legacy trees of the desired species, though there was also a small deficit (-3 trees)

in the snags category of 19"+ for the optimal level. The maintenance level was met by this snags size class as well as all other categories of snags and cavity trees.

The wildlife that was noted during the inventory was typical with other areas in Harrison County. Evidence of deer, turkey, coyotes, squirrels, raccoons, and various birds were noted during the inventory. Since the plantation is still young and similar to an open field, it creates a more diverse habitat with field and forest habitat meeting, creating a fringe habitat beneficial to many forest wildlife species.

Wildlife Habitat Feature (Tract Wide)

Category	Maintenance level	Optimal Level	Inventory	Available Above maintenance	Available Above Optimal
Legacy Trees *					
11"+	360		421	61	
20"+	120		59	-61	
Snags (all species)					
5"+	160	280	1318	1158	1038
9"+	120	240	359	239	119
19"+	20	40	37	17	-3
Cavity Trees (all species)					
7"+	160	240	407	247	167
11"+	120	160	208	88	48
19"+	20	40	70	50	30

* species include: AME, BIH, BLL, COT, GRA, REO, POO, REE, SHH, ZSH, SIM, SUM, WHA, WHO

Indiana Bat

As management activities are currently only performed in the winter months due to voluntary compliance to the seasonal Indiana bat guidelines offered by the USFWS, it is unlikely that direct harm will come to the Indiana bat as they are hibernating in nearby caves at this time. Any skid trails/haul roads created in this tract could improve the habitat for the Indiana bat by improving the canopy foraging conditions due to the reduction of understory clutter. Furthermore, the areas around likely roost trees can be opened up to benefit the bat. Released crop trees and the edge of log yards can increase the solar exposure of roost trees which improves the microclimate and thermal conditions of the roosting areas.

Trees that are ideal for roosting bats such as large snags and large trees that have loose/exfoliating bark can be retained to provide for the Indiana bat. Furthermore, the growth of ideal tree species for the Indiana bat can be managed to promote growth to increase the recruitment of trees into the categories suitable for the Indiana bat.
As mentioned above, this tract meets most of the optimal level goals. The lack of large legacy trees of the desired species is the main flaw of this tract in terms of Indiana bat guidelines. Given time, the desired species will grow into the larger size class and create an area suitable for the Indiana bat.

Recreation

The firelane along entering the tract is a popular trail for recreation. One of the property's 5 designated disabled hunter trails follows this firelane and terminates at the tree plantation. The firelane has a horsetrail split off of it which in turn runs along the Blue River throughout the tract and moves into the neighboring tract to the east. Evidence was seen that this trail is used both by equestrians and hikers.

Cultural

Cultural resources may be present on this tract but their location is protected. Adverse impacts to significant cultural resources will be avoided during any management or construction activities.

Summary Tract Silvicultural Description, Prescription, and Proposed Activities

Bottomland Hardwoods (5 acres)

The smaller of the two forested stands, this stand is a thin sliver running along the Blue River in the northern section of the tract. There was a total volume of 6,820 bf/ac within this stand and 123 sqft/ac. Roughly half of this volume was made up of large American sycamore trees along the river which were too near the river to be harvested. The trees that would be removed in a thinning would mainly be American sycamore and boxelder (only those not along the river bank) due to their lower quality. A possible benefit of not thinning these two species would be that they were often riddled with cavities of varying size. Even with a surplus in cavity trees, these individuals might benefit the Indiana bat. As time goes by the forest will begin to thin itself as a result of competition lowering the basal area to a more suitable level.

Mixed Hardwoods (25 acres)

This stand took up a majority of the tract and also surrounded the plantation/ yellow poplar stands. There is a section of this stand which is a thin strip between the plantation and the Blue River which is an area where any management operations should be limited to prevent damaging the riparian environment or causing excessive runoff to enter the river. The overall volume of this stand was 4,730 bf/ac with a basal area of 120 sqft/ac. Like the Bottomland Hardwoods stand, this stand has a high basal area causing an increase in competition. Thinning is not recommended at this time, due to the relative small area in a riparian zone. Additionally, a horse trail segment goes through this strip.

Plantation (14 acres) and Yellow Poplar (4 acres)

The yellow poplar stand is naturally occurring and started very soon after farming was discontinued in the field area. The planting was done in the spring of 2003 with a mechanical planting machine. Chemical weed control was applied the first 2 or 3 springs. Species planted included black cherry, white, red, shumard, and cherry bark oaks, pecan, and shellbark hickory. Neither of these stands was inventoried due to their youth. A separate inventory should be performed that targets saplings to gain an accurate assessment of these two stands progression. There was a eastern red cedar population moving into the plantation. These trees are still small but will begin reaching an overstory level and possibly choke out the planted individuals. After the prescribed inventory, this population should be assessed. Based on this assessment, a removal might be necessary in order to protect the planted species.

TRACT ACCOMPLISHMENT RECORD
Compartment 20, Tract 2

DATE PLANNED	ACTIVITY / REMARKS	DATE COMPLETED
2012	Assess Success of 2003 Planting	
2013	Check for Ailanthus and Vines and Perform Control if Needed.	
2018	Crop Tree Release in 2003 Planting and Young Yellow Poplar	
2020	Return for Inventory	

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You must indicate the State Forest Name, Compartment Number and Tract Number in the "Subject or file reference" line to ensure that your comment receives appropriate consideration. Comments received within 30 days of posting will be considered.

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